



Public Works Department
Stormwater Services Division

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Third Fork Creek Watershed Planning and Design Project

Agenda:

- Introduction to Third Fork Creek project
- High priority areas
- Project prioritization criteria
- Recommended high priority projects
- Other recommended actions
- Discussion



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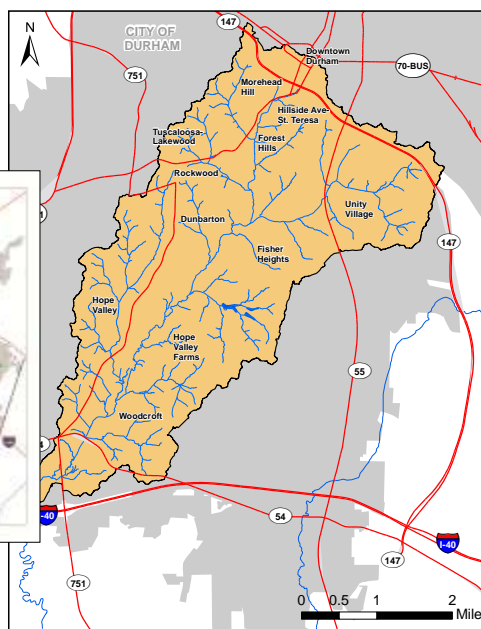


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Watershed Location



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Why a Watershed Perspective?

It helps us see the connection between what's happening on the land and the quality of water in the stream

It allows for better overall management of stormwater runoff



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Most Significant Water Quality Concerns in Third Fork Creek

- Nitrogen and phosphorus loading
- Stream channel instability
- High sediment and high turbidity (muddy water)
- Low DO or dissolved oxygen
- Low biological activity (such as fish and aquatic insects)



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Third Fork Creek Watershed Planning Goals



- Restore and protect watershed functions and Jordan Lake
- Protect human health, safety, and property by reducing stormwater impacts
- Support balanced, sustainable, and diverse land use and development
- Build partnerships and involve stakeholders
- Ensure compliance with federal and state regulations

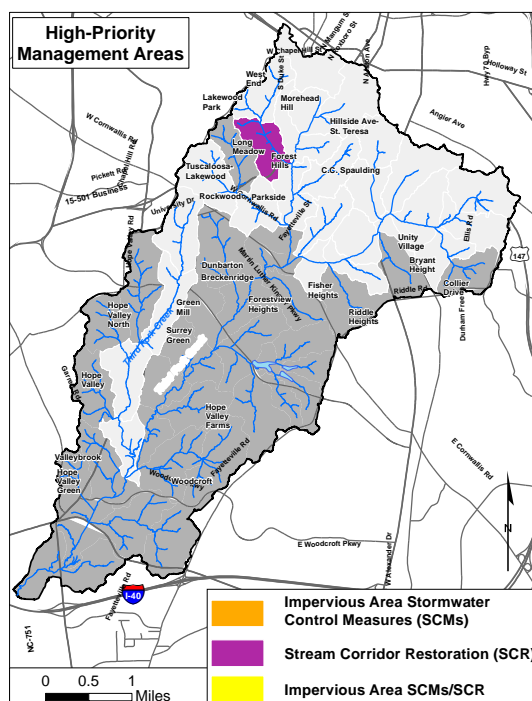
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Third Fork Creek Watershed

High-Priority Areas for Management Based on:

- Monitored stream habitat and channel stability indicators
- Modeled pollutant loads as calibrated based on local data





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Stormwater Control Measure (SCM)

Refers to constructed devices, natural vegetated areas, educational programs, and actions that can be taken to help reduce, control, and clean stormwater before it washes into the creek



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Project Prioritization Criteria

- **Water Quality Treatment**
 - most cost effective for reducing existing pollution.
- **Habitat and Biological Integrity**
 - most successful at improving stream habitat and life in the stream.
- **Streambank and Channel Protection**
 - minimizes erosion of streambanks and channels.

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Project Prioritization Criteria, cont.

- **Community Enhancement**

- added benefits to the citizens of Durham.

- **Implementation Issues**

- most feasible in terms of public acceptance, cost, site access, etc.

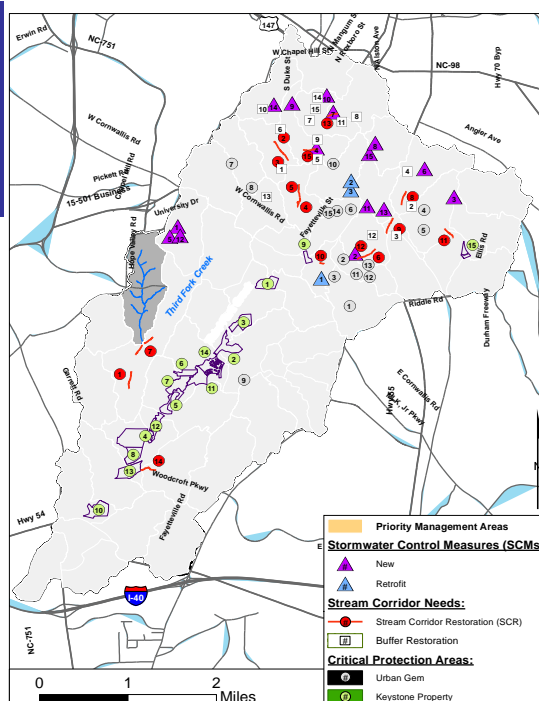
- **Public Safety and Public Property**

- most protective of public safety and public property.

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Third Fork Creek Watershed

- 18 SCMs
- 15 channel restoration/enhancement projects
- 15 buffer restoration projects
- 30 preservation projects





Land Preservation



Bioretention Area



Stream and Buffer Restoration



Constructed Wetland



Rainwater Harvesting



Wetpond

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Estimated Costs and Benefits All High Priority Projects

- **Estimated Cost for SCMs, Stream and Buffer Restorations and Land Preservation**

- \$30,676,299
- Includes land acquisition, design, construction, and maintenance

- **Estimated Pollution Reduction Benefits**

- 613 lbs/yr nitrogen reduction
- 68 lbs/yr phosphorus reduction
- 1,624,040 lbs/yr total suspended solids reduction
- Does not include pollution avoided by land preservation

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Estimated Costs and Benefits 18 High Priority SCMs

• Estimated Cost

- \$4,428,851
- Includes land acquisition, design, construction, and maintenance

• Estimated Pollution Reduction Benefits

- 232 lbs/yr nitrogen reduction
- 13 lbs/yr phosphorus reduction
- 4,456 lbs/yr total suspended solids reduction

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Estimated Costs and Benefits 15 High Priority Stream Restorations

• Estimated Cost

- \$10,266,783
- Includes land acquisition, design, construction, and maintenance

• Estimated Pollution Reduction Benefits

- 256 lbs/yr nitrogen reduction
- 45 lbs/yr phosphorus reduction
- 1,614,952 lbs/yr total suspended solids reduction

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Estimated Costs and Benefits 15 High Priority Buffer Restorations

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• Estimated Cost

- \$3,363,811
- Includes land acquisition, design, construction, and maintenance

• Estimated Pollution Reduction Benefits

- 125 lbs/yr nitrogen reduction
- 10 lbs/yr phosphorus reduction
- 4,632 lbs/yr total suspended solids reduction

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Estimated Costs for 30 High Priority Land Preservation Projects

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• Estimated Cost

- \$12,616,854
- Includes land acquisition and maintenance

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Other Recommended Actions

- Improve education on benefits of stream buffers, no-mow areas, and buffer replanting.
- Evaluate opportunity to expand installation of rain gardens, downspout disconnections and cisterns.
- Prioritize stream cleanup efforts in areas identified as high-priority for stream restoration.
- Enhance fertilizer application outreach to professionals and homeowners.



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Other Recommended Actions, cont.

- Continue to Update the City's Reference Guide for Development (refining design standards for bioretention and permeable pavement)
- Use tracking indicators to monitor changes in watershed conditions and progress in meeting goals.



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Example Tracking Indicators

- Water quality (current and trend)
- Aquatic habitat
- Nutrient loads
- Impervious area treated
- Length of stream restored
- Area of riparian buffer restored
- Area of watershed permanently protected
- # Raingardens or rainbarrels installed
- # Tons trash collected in stream cleanups



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What You Can Do

Review Draft Plan

- Visit the Stormwater Services website at www.durhamnc.gov/stormwater to review the Draft Plan:
 - Volume I – Executive Summary
 - Volume II – Watershed Management Plan

Support Implementation

- See list of 10 things you can do in the newsletter: Third Fork Creek Restoration Update Vol. 2

Stay in Contact with the City

- Sandra Wilbur, PE
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QUESTIONS AND DISCUSSION

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